OP-39

A retrospective study on the clinical features of emergency patients with large or massive consumption of caffeinated supplements or energy drinks in Japan

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Objective: In Japan, several severe or fatal cases have been reported among people who consumed large or massive amounts of caffeinated supplements [1,2]. We conducted a retrospective study on the epidemiological and clinical features of patients with acute caffeine poisoning in Japan.

Methods: Letters requesting participation were sent to 264 emergency departments of hospitals, and questionnaires were mailed to those that agreed to participate. Participants were patients transported to emergency departments of hospitals between April 2011 and March 2016 after consuming large or massive amounts of caffeinated supplements or energy drinks (caffeine dose ≥ 1.0 g).

Results: We surveyed 101 patients from 38 emergency departments. Since April 2013, the number of patients has markedly increased. Of these young patients (median age, 25 years), 53 were male, and 97 had consumed caffeine in tablet form. Estimated caffeine doses (n = 93) ranged from 1.2 to 82.6 g (median, 7.2 g). Serum caffeine levels on admission (n = 17) ranged from 2.0 to 530.0 μg/mL (median level, 106.0 μg/mL). Common abnormal vital signs and laboratory data on admission included tachypnea, tachycardia, depressed consciousness, hypercreatinekinasemia, hyperglycemia, hypokalemia, hypophosphatemia, and hyperlactatemia. Common signs and symptoms in the clinical course included nausea, vomiting, excitement/agitation, and sinus tachycardia. Seven patients (6.9%) who had consumed ≥ 6.0 g of caffeine, or whose serum caffeine levels on admission were ≥ 200 μg/mL, developed cardiac arrest. Ninety-seven patients (96.0%) recovered completely, but 3 patients (3.0%) died.

Conclusion: The present analysis of data from more than 100 emergency patients revealed clinical features of moderate to fatal caffeine poisoning. Caffeinated tablets may pose a higher risk of poisoning as they are much easier to consume in large or massive quantities than caffeinated drinks. We recommend highlighting the toxicity risks associated with ingesting highly caffeinated tablets.

References:

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